

FORM PCT 1390  
REV. 5/93

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NO.

GÜNTHER - 2 (PCT)

TRANSMITTAL LETTER TO THE UNITED STATES  
DESIGNATED/ELECTED OFFICE (DO/EO/US)  
CONCERNING A FILING UNDER 35 U.S.C. 371

U.S. APPLICATION NO. (if known, see 37 CFR 1.5)

09/831320

INTERNATIONAL APPLICATION NO.  
PCT/EP99/08404INTERNATIONAL FILING DATE  
3 NOVEMBER 1999PRIORITY DATE CLAIMED  
6 NOVEMBER 1998

## TITLE OF INVENTION

PROCESS FOR THE PRODUCTION OF A MULTILAYER COMPOSITE MATERIAL AND THE COMPOSITE MATERIAL PRODUCED BY THIS PROCESS

APPLICANT(S) FOR DO/EO/US

WALTER GÜNTHER

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371 (f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(I).
4. ☒ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
  - a. ☒ is transmitted herewith (required only if not transmitted by the International Bureau)
  - b. ☐ has been transmitted by the International Bureau.
  - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)).
  - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
  - b. ☐ have been transmitted by the International Bureau.
  - c. ☐ have not been made; however, the time limit for making such amendments has **NOT** expired.
  - d. ☐ have not been made and will not be made.
8. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

## Items 11. to 16. below concern other document(s) or information included:

11. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☒ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A **FIRST** preliminary amendment.  
☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
14. ☐ A substitute specification.
15. ☐ A change of power of attorney and/or address letter.
16. ☒ Other items or information:

PCT/ISA/210 - Int'l. Search Report (English)  
1 SHEET OF FORMAL DRAWINGSApplicant Claims Priority under 35 U.S.C. §119 of German Application No. 198 51 104.3 filed November 6, 1998.  
Applicant Claims Priority under 35 U.S.C. §120 of: PCT/EP99/08404 filed November 3, 1999.

APPLICATION NO. (if known, see 37 CFR 1.5)

09/831320

INTERNATIONAL APPLICATION NO  
PCT/EP99/08404ATTORNEY'S DOCKET NO.  
GÜNTHER - 2 (PCT)☒ The following fees are submitted:**Basic National Fee (37 CFR 1.492(a)(1)-(5)):**

Search Report has been prepared by the EPO or JPO.....\$860.00

International preliminary examination fee paid to USPTO (37 CFR 1.482)  
.....\$690.00Neither international preliminary examination fee paid (37 CFR 1.82) nor  
international search fee (37 CFR 1.445(a)(2)) paid to USPTO.....\$1,000.00International preliminary examination fee paid to USPTO (37 CFR 1.482)  
and all claims satisfied provisions of PCT Article 33(2)-(4).....\$100.00**ENTER APPROPRIATE BASIC FEE AMOUNT =**

\$ 860.00

Surcharge of \$130.00 for furnishing the oath or declaration later than \_\_\_\_ 20 \_\_\_\_ 30  
months from the earliest claimed priority date (37 CFR 1.492(e)).

Claims	Number Filed	Number Extra	Rate
Total Claims	13 - 20 =	- 0 -	X \$18.00
Independent Claims	1 - 3 =	- 0 -	X \$80.00
Multiple dependent claim(s) (if applicable)			+ \$270.00

**TOTAL OF ABOVE CALCULATIONS =**

\$ 860.00

Reduction by 1/2 for Small Entity status.

\$

**SUBTOTAL =**

\$ 860.00

Processing fee of \$130.00 for furnishing the English translation later than \_\_\_\_ 20 \_\_\_\_ 30  
months from the earliest claimed priority date (37 CFR 1.492(f)).

\$

**TOTAL NATIONAL FEE =**

\$ 860.00

Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be  
accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property +See cover sheet attached to assign  
\$ to be charged to Deposit Acct**TOTAL FEES ENCLOSED =**

\$ 860.00

Amount to be:  
refunded

\$

charged

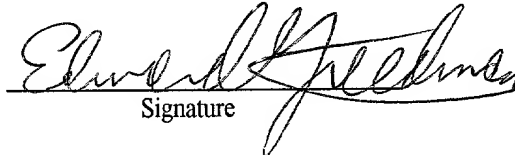
\$

Applicant claims Small Entity status.

- a. ☒ A check in the amount of \$ 860.00 to cover the above fees is enclosed.
- b. ☐ Please charge my Deposit Account No. 03-2468 in the amount of \$ \_\_\_\_\_ to cover the above fees. A duplicate copy of this sheet is enclosed.
- c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment, to Deposit Account No. 03-2468. A duplicate copy of this sheet is enclosed.

**NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.**

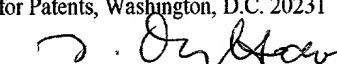
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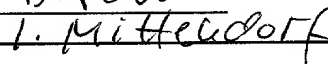
  
Signature

Edward R. Freedman  
Reg. No. 26,048

Express Mail No. **EL 769 391 415 US**Date of Deposit **May 7, 2001**

I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10, on the date indicated above, and is addressed to the Ass't. Commissioner for Patents, Washington, D.C. 20231

  
Lisa L. Vulpis

  
I. Mittelehoff

09/831320

JC08 Rec'd PCT/PTO 07 MAY 2007

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS: WALTER GÜNTER - 2 (PCT)  
PCT NO.: PCT/EP99/08404  
FILED: NOVEMBER 3, 1999  
TITLE: PROCESS FOR THE PRODUCTION OF A MULTILAYER  
COMPOSITE MATERIAL AND THE COMPOSITE MATERIAL  
PRODUCED BY THIS PROCESS

PRELIMINARY AMENDMENT

BOX PCT  
Ass't. Commissioner for Patents  
Washington, D.C. 20231

Dear Sir:

Preliminary to the initial Office Action, please amend the  
above-identified application as follows:

IN THE SPECIFICATION:

On Page 1, above line 1, please insert the following  
paragraphs:

--CROSS REFERENCE TO RELATED APPLICATIONS

Applicant claims priority under 35 U.S.C. §119 of German  
Application No. 198 51 104.3 filed November 6, 1998. Applicant  
also claims priority under 35 U.S.C. §120 of PCT/EP99/08404 filed  
November 3, 1999. The international application under PCT  
article 21(2) was not published in English.--

**IN THE CLAIMS:**

Please cancel claims 1-13 and replace them with new claims 14-26 as follows:

--14. A process for the production of a multilayer composite material (1, 21) with a plastic layer (4, 24) that has release properties with respect to adhesives, where the materials producing the release properties are located within the plastic layer, wherein a first web (2, 22) is provided in production of the composite material (1, 21) on one side of which a layer of adhesive (3, 23) is located, after which the plastic layer (4, 24) with the release properties will follow, which is in turn bonded to a second web (5, 25).

15. Process according to claim 14, wherein a web of paper or a similar material is provided as the first web (2, 22).

16. Process according to claim 14, wherein metal foil is provided as the first web (2, 22).

17. Process according to claim 14, wherein a nonwoven fabric is provided as the first web (2, 22).

18. Process according to claim 14, wherein the layers are extruded onto the first web (2, 22) simultaneously by the coextrusion process.

19. Process according to claim 14, wherein a web of paper or a similar material is provided as the second web (5, 25).

20. Process according to claim 19, wherein the layers including the first web (2, 22) are extruded onto the second web (5, 25).

21. Process according to claim 14, wherein at least the adhesive layer (3, 23) and the layer (4, 24) with the release properties are extruded between the two webs (2, 22 and 5, 25).

22. Process according to claim 14, wherein the first and/or second web (2, 22; 5, 25) are oriented if plastic is used for one or both of them.

23. Process according to claim 22, wherein a web (2, 22; 5, 25) which is pre-produced from plastic is oriented before it is used.

24. Multilayer composite material produced in accordance with the process as described in claim 14, wherein a first web (2, 22) and at least a second web (5, 25) are provided, between which a layer of adhesive (3, 23) and a further layer (2, 24) that has release properties with respect to the adhesive are located.

25. Multilayer composite material according to claim 24, wherein further layers (26) are provided that are located on the outside of the first web (2, 22) and/or the second web (5, 25).

26. Multilayer composite material according to claim 24, wherein the first and/or second web (2, 5, 22, 25) are made from an oriented plastic film.--


REMARKS

By this Preliminary Amendment, the application has been amended to conform with U.S. practice, the cross-reference to related applications has been inserted on page 1 and claims 1-13 have been replaced by new claims 14-26. No new matter has been introduced. Entry of this amendment is respectfully requested.

Respectfully submitted,

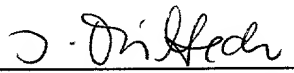
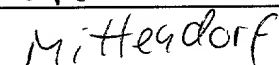
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Attorneys for Applicants

Express Mail No. EL 769 391 415 US  
Date of Deposit May 7, 2001

I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. § 1.10, on the date indicated above, and is addressed to the Ass't. Commissioner for Patents, Washington, D.C. 20231

  
Lisa L. Vulpis 

09/831320

JP08 Rec'd PCT/PTO 07 MAY 2001

1/PRTS

Fo7264PCT

4P Folie Forchheim GmbH

Multilayer composite material

## Description

Process for the production of a multilayer composite material and the composite material produced by this process

The invention relates to a process for the production of a multilayer composite material with a plastic layer that has release properties with respect to adhesives, where the materials producing the release properties are located within the plastic layer.

The purpose of the invention is to indicate a process with which a composite material can be produced efficiently from a first web that can be designed to be a substrate web, an adhesive, a release layer and a second web that can also be designed to be a substrate web for the release layer.

In the solution to this problem proposed by the invention, a first web is provided in production of the composite material on one side of which a layer of adhesive is located, after which the plastic layer with the release properties will follow, which is in turn bonded to a second web.

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In a particularly advantageous development of the invention, a web of paper or a similar material is provided as the first web.

The adhesive layer, the release layer and a second web that acts as the substrate web for the release layer are applied to this paper web.

A web made from metal foil can be provided instead of the paper web in accordance with a further development of the invention.

It is also possible in accordance with a further development of the invention that a nonwoven fabric is provided as the first web.

A particularly advantageous development of the invention is characterised by the fact that the layers are extruded onto the first web simultaneously by the coextrusion process.

In another advantageous development of the invention, a web of paper or a different pre-produced material is provided as the second web.

It is particularly advantageous if in accordance with a further development of the invention the layers including the first web are extruded onto the second web.

It can also be very advantageous if in accordance with a further development of the invention at least the adhesive layer and the layer with the release properties are extruded between the two webs.

In another advantageous development of the invention, the first and/or second web are oriented if plastic is used for one or both of them.

The strength of these webs is increased considerably by doing this.



It is also very advantageous if in accordance with a further development of the invention a web which is pre-produced from plastic is oriented before it is used.

In accordance with an advantageous development of the invention, a multilayer composite material is characterised by the fact that a first web and at least a second web are provided, between which a layer of adhesive and a further layer that has release properties with respect to the adhesive are located.

In a further advantageous development of the multilayer composite material, further layers are provided that are located on the outside of the first web and/or the second web.

It has also proved to be very advantageous if in accordance with a further development of the invention the first and/or second web are made from an oriented plastic film.

Two embodiments of the invention are illustrated in the drawings:

Fig. 1 shows a four-layer composite material with a web of paper as the substrate web and

Fig. 2 shows a five-layer composite material, in which a nonwoven fabric is provided as the substrate web for the adhesive layer.

1 in Fig. 1 is a composite material that includes a first web 2 made of paper. A layer of adhesive 3, a layer 4 that has release properties with respect to the adhesive and a plastic layer 5 have been applied to this paper web 2 by the coextrusion process. The other side of the paper web 2 can be provided with other coatings in the same process operation too.

A composite material 21 consisting of five layers is provided in the embodiment shown in Fig. 2, where the first web 22 is made from a nonwoven fabric. Different web

materials such as metal are possible alternatives to paper or nonwoven fabric. A layer of adhesive 23, a release layer 24, a plastic layer 25 and a covering layer 26 for the plastic layer have been applied to the web 22 by the coextrusion process.

A second web which consists of paper, nonwoven fabric, metal or plastic and onto which the other layers are extruded can be used in both embodiments instead of the plastic layer 5 or 25.

It is conceivable in addition to this that two pre-produced webs are used, between which the other layers are applied at the same time by the extrusion process. It is also possible in this context to coat the outsides of the two pre-produced webs in the same process operation.

When paper is used as the substrate material for the first web, smooth, printable papers are primarily used for the side that is coated with adhesive.

Simple, inexpensive papers are on the other hand also used for the second web that is provided with a release layer.

When plastic webs are used, they can be oriented before they are processed, while webs that consist exclusively of plastic can also be oriented after production of the composite material has been completed.

If the two webs or layers 2, 22 and 5, 25 are made out of plastic, different plastics can be used for them, irrespective of whether they are processed as finished webs or are extruded. LDPE, LLDPE, HDPE, mPE, PS, PET, PETP, PP and OPP are particularly advantageous in this context.

The material thickness varies between 20 and 200  $\mu$  here.

Possible adhesives are extrudable, permanently tacky adhesives based on hotmelts and polyolefins with appropriate tackifying additives. SIS, SBS, SEBS and SEP block copolymers with melt indices of between 8 and 65 g / 10 min at 200° C and 5 kg have, for example, been used. The styrene content of the polymers varies between 10 and 35%. The properties of the adhesive layer are controlled by the addition of resins and plasticisers, e.g. by means of aliphatic hydrocarbon resins, polyterpene resins, hydrolysed hydrocarbon resins, aromatic hydrocarbon resins, paraffin waxes, microcrystalline waxes, polyisobutylene and process oils.

Liquid components are processed into an extrudable form by carrying out a compounding operation beforehand.

Another way to produce the adhesive layer involves the inclusion of UV acrylates or UV-cured PSAs between the other layers by using melt transport technology.

Fo7264PCT

4P Folie Forchheim GmbH

Multilayer composite material

### Claims

1. A process for the production of a multilayer composite material (1, 21) with a plastic layer (4, 24) that has release properties with respect to adhesives, where the materials producing the release properties are located within the plastic layer, **wherein** a first web (2, 22) is provided in production of the composite material (1, 21) on one side of which a layer of adhesive (3, 23) is located, after which the plastic layer (4, 24) with the release properties will follow, which is in turn bonded to a second web (5, 25).
2. Process according to claim 1, **wherein** a web of paper or a similar material is provided as the first web (2, 22).
3. Process according to claim 1, **wherein** metal foil is provided as the first web (2, 22).
4. Process according to claim 1, **wherein** a nonwoven fabric is provided as the first web (2, 22).

5. Process according to one of the claims 1 to 4, **wherein** the layers are extruded onto the first web (2, 22) simultaneously by the coextrusion process.
6. Process according to one of the previous claims, **wherein** a web of paper or a similar material is provided as the second web (5, 25).
7. Process according to claim 6, **wherein** the layers including the first web (2, 22) are extruded onto the second web (5, 25).
8. Process according to one of the previous claims, **wherein** at least the adhesive layer (3, 23) and the layer (4, 24) with the release properties are extruded between the two webs (2, 22 and 5, 25).
9. Process according to claim 1, **wherein** the first and/or second web (2, 22; 5, 25) are oriented if plastic is used for one or both of them.
10. Process according to claim 9, **wherein** a web (2, 22; 5, 25) which is pre-produced from plastic is oriented before it is used.
11. Multilayer composite material produced in accordance with the process as described in one of the previous claims, **wherein** a first web (2, 22) and at least a second web (5, 25) are provided, between which a layer of adhesive (3, 23) and a further layer (2, 24) that has release properties with respect to the adhesive are located.
12. Multilayer composite material according to claim 11, **wherein** further layers (26) are provided that are located on the outside of the first web (2, 22) and/or the second web (5, 25).
13. Multilayer composite material according to claim 11 or 12, **wherein** the first and/or second web (2, 5, 22, 25) are made from an oriented plastic film.

Fo7264PCT

4P Folie Forchheim GmbH

Multilayer composite material

### Summary

Process for the production of a multilayer composite material and the composite material produced by this process

Process for the production of a multilayer composite material with a plastic layer that has release properties with respect to adhesives, where the materials producing the release properties are located within the plastic layer, where a first web is provided in production of the composite material on one side of which a layer of adhesive is located, after which the plastic layer with the release properties follows, which is in turn bonded to a second web.

Fig. 1

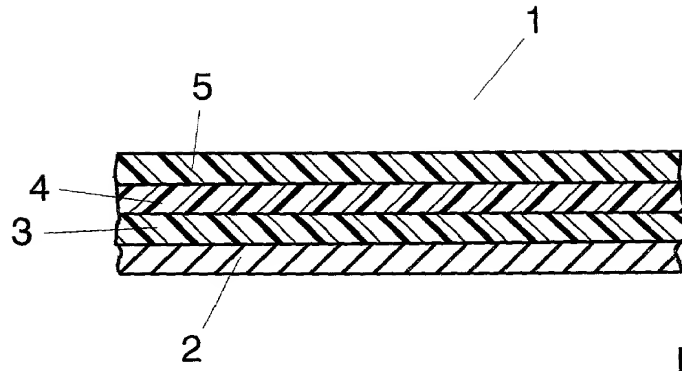


Fig. 1

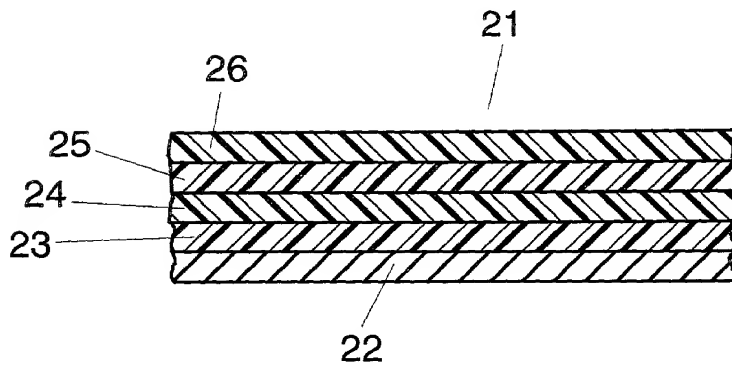


Fig. 2

COMBINED DECLARATION #  
(Includes Reference to PCT Items)+49 9191 81446  
516 365 9805  
POWER OF ATTORNEYATTORNEY'S DOCKET NUMBER  
CUNTER-2 PCT

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

**Process for the Production of a Multilayer Composite Material and the Composite Material Produced by this Process**

the specification of which (check only one item below):

- ☐ is attached hereto.
- ☐ was filed as United States application  
Serial No. \_\_\_\_\_  
on \_\_\_\_\_  
and was amended  
on \_\_\_\_\_ (if applicable).
- ☒ was filed as PCT international application  
Number PCT/EP99/08404  
on 1 NOVEMBER 1999  
and was amended under PCT Article 19  
on \_\_\_\_\_ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed:

**PRIOR FOREIGN/PCT APPLICATION(S) AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. 119:**

COUNTRY (if PCT, indicate "PCT")	APPLICATION NUMBER	DATE OF FILING (day, month, year)	PRIORITY CLAIMED UNDER 35 U.S.C. 119
GERMANY	198 51 104.3	6 NOVEMBER 1998	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
			<input type="checkbox"/> YES <input type="checkbox"/> NO
			<input type="checkbox"/> YES <input type="checkbox"/> NO
			<input type="checkbox"/> YES <input type="checkbox"/> NO
			<input type="checkbox"/> YES <input type="checkbox"/> NO



MAR-18-2001 17:45

COMBINED DECLARATION P  
(Includes Reference to PCT Internu+49 9191 81446  
516 365 9805

ND POWER OF ATTORNEY

516 365 9805 P.09/11

ATTORNEY'S DOCKET NUMBER  
QUINTER-2 PCT

I hereby claim the benefit under Title 35, United States Code, Section 119(e) of any United States provisional application(s) listed below.

(Application Number)

(Filing Date)

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) or PCT international application(s) designating the United States of America that is/are listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in that/those prior application(s) in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application(s) and the national or PCT international filing date of this application:

**PRIOR U.S. APPLICATIONS OR PCT INTERNATIONAL APPLICATIONS DESIGNATING THE U.S. FOR BENEFIT UNDER 35 U.S.C. 120:**

U.S. APPLICATIONS			STATUS (Check One)		
U.S. APPLICATION NUMBER	U.S. FILING DATE		PATENTED	PENDING	ABANDONED
PCT APPLICATIONS DESIGNATING THE U.S.					
PCT APPLICATION NO.	PCT FILING DATE	U.S. SERIAL NUMBERS ASSIGNED (if any)			

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. (List name and registration numbers):

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ALLISON C. COLLARD, Registration No. 22,532;

WILLIAM C. COLLARD, Registration No. 38,411

EDWARD R. FREEDMAN, Registration No. 26,048;

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ELIZABETH COLLARD RICHTER, Registration No. 35,103

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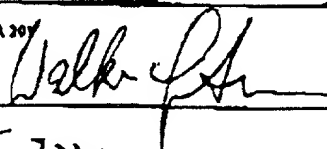
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(name and telephone number)  
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2	FULL NAME OF INVENTOR	FAMILY NAME	FIRST GIVEN NAME	SECOND GIVEN NAME
		QUENTER	WALTER	
0	RESIDENCE & CITIZENSHIP	CITY	STATE OR FOREIGN COUNTRY	COUNTRY OF CITIZENSHIP
		FORCHHEIM	GERMANY DEX	GERMANY
1	POST OFFICE ADDRESS	POST OFFICE ADDRESS	CITY	STATE & ZIP CODE/COUNTRY
		ZWEIBRÜCKENSTRASSE 15-25	D-91301 FORCHHEIM	GERMANY

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

SIGNATURE OF INVENTOR 301



DATE

3-5-2001

098430-05001

001